

Differentiated Instruction Intensive Institute: Advanced Content & Application January 15, 2013 - January 16, 2013

D-1 Time & Planning for Differentiated Instruction

Rick Wormeli

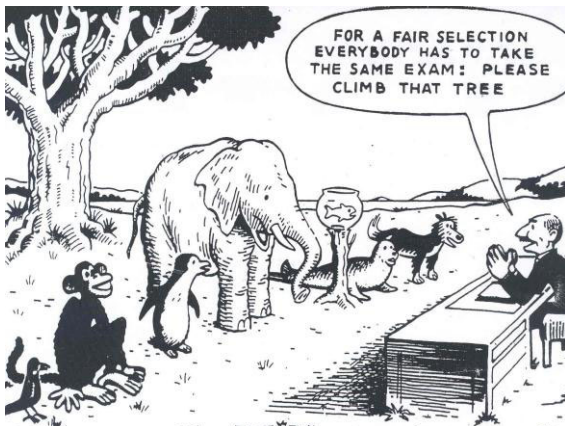
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Time and Planning for Differentiated Instruction

SDE January 2013

For further conversation about any of these topics:

Rick Wormeli
rwormeli@cox.net
703-620-2447
Herndon, Virginia, USA
(Eastern Standard Time Zone)



**What is fair...
...isn't always equal.**

Are we successfully differentiating teachers?

1. Are we willing to teach in whatever way is necessary for students to learn best, even if that approach doesn't match our own preferences?
2. Do we have the courage to do what works, not just what's easiest?
3. Do we actively seek to understand our students' knowledge, skills, and talents so we can provide an appropriate match for their learning needs? And once we discover their strengths and weaknesses, do we actually adapt our instruction to respond to their needs?
4. Do we continually build a large and diverse repertoire of instructional strategies so we have more than one way to teach?
5. Do we organize our classrooms for students' learning or for our teaching?

Are we successfully differentiating teachers?

6. Do we keep up to date on the latest research about learning, students' developmental growth, and our content specialty areas?
7. Do we ceaselessly self-analyze and reflect on our lessons — including our assessments — searching for ways to improve?
8. Are we open to critique?
9. Do we push students to become their own education advocates and give them the tools to do so?
10. Do we regularly close the gap between knowing what to do and really doing it?

Definition

Differentiating instruction is doing what's fair for students. It's a collection of best practices strategically employed to maximize students' learning at every turn, including giving them the tools to handle anything that is undifferentiated. It requires us to do different things for different students some, or a lot, of the time. It's whatever works to advance the student if the regular classroom approach doesn't meet students' needs. It's highly effective teaching.

Classroom Samples

- Students watch an instructional video. Every 10 to 15 minutes, the teacher stops the video and asks student to summarize what they've learned.
- The teacher does several math problems on the front board, then assigns students five practice problems to see if they understand the algorithm.

- Students are working in small groups on an assigned task. One student isn't cooperating with the rest of his group, however, and as a result, the group is falling farther behind the other groups.
- There are only enough microscopes for every three students. One student uses the microscope to bring items into focus, another draws what the group sees through the eyepiece, then the three students answer questions.

- Eleven students do not do the assignment from last night. Consequently, they are not prepared to move on with the class in today's task.
- Four ELL students have been placed in your class, but they are far from comfortable with English, especially with the vocabulary associated with your subject area.

Let's accept these premises:

- As they are currently designed, schools are not set up to teach. They are meant to protect the status quo. They conspire against students and teachers who need more, less, or different of anything.
- In order to meet the needs of all students, not just the easy ones, we have to transcend the regular classroom boundaries: time, space, resources, people.

The biggest hurdle to teachers with the DI expertise who want to differentiate:

Possibilities for finding extra time for student learning outside the classroom:

- Saturday school
- Early back programs
- Audio and video podcast of the day's lesson for student and family access later
- Lunch period
- One assignment demonstrating content in two different classes
- After school work
- Before school work
- E-mail "fan out" to all faculty to send student to you if he finishes early in their classes

Possibilities for finding extra time for student learning outside the classroom:

- Summer school
- Mentoring
- On-line tutorials, distance learning, Skype
- Volunteer adults sitting with him in the classroom
- Resource room/program
- Peer tutoring programs
- Alternative, less time intensive assignments/assessments
- Teaching the student personal study skills
- Other ideas?

Possibilities for Finding Extra Time for DI Lesson Planning:

- Divide and conquer with colleagues
- Prioritize with subject-like colleagues what standards/outcomes are Power Standards/Outcomes, and which are of lesser importance
- On-line search of lesson plans already created, and of standards/outcomes already unwrapped
- "Bank" portions of assignments/assessments on which students do well
- www.schooltube.com, www.teachertube.com, Khan Academy and similar Websites

Possibilities for Finding Extra

Time for DL Lesson Planning:

- Use of volunteers in the classroom to assist with students and instruction
- Subscribe to professional education magazines/journals – they have great ideas!
- Read some of those education books you’ve been thinking about reading
- Participate in listserv’s and other on-line communities
- Read and use some of the materials and content publishers put in the teacher’s version of the basal text
- Establish a Faculty Portfolio of Ideas (FPI) at every photocopier in the building
- Other ideas?

Quick Reference: Differentiated Lesson Planning Sequence

A. Steps to take before designing the learning experiences:

1. Identify your essential understandings, questions, benchmarks, objectives, skills, standards, and/or learner outcomes.
2. Identify your students with unique needs, and get an early look at what they will need in order to learn and achieve.
3. Design your formative and summative assessments.
4. Design and deliver your pre-assessments based on the summative assessments and identified objectives.
5. Adjust assessments or objectives based on your further thinking discovered while designing the assessments.

Learner Profile: Any Factor that might Influence Learning

Family dynamics (if influential)	Transiency rate
SES	IEP
504	ELL
LD	Gifted/Advanced
Physical health	Emotional health
Speech and Language Issues	Behavior/Discipline concerns
Nationality (if influential)	Diet (if influential)
Religious affiliation (if influential)	Technology access/comfort
Multiple Intelligences	Arts – comfort/proficiency
Personal background/experiences	Leadership qualities
Ethics	Collaboration
Personal interests: sports, music, television, movies, books, hobbies, other	Weekly schedule
Myers-Briggs Personality Inventory	Politics (if influential)
Bernice McCarthy’s 4MAT	Anthony Gregorc Scale
Tourette’s Syndrome	Home responsibilities
Down’s Syndrome	ADHD
Visually Impaired	Asperger’s Syndrome
	Hearing Impaired
	Auditory Processing issues

Quick Reference: Differentiated Lesson Planning Sequence

B. Steps to take while designing the learning experiences:


1. Design the learning experiences for students based on pre-assessments, your knowledge of your students, and your expertise with the curriculum, cognitive theory, and students at this stage of human development.
2. Run a mental tape of each step in the lesson sequence to make sure things make sense for your diverse group of students and that the lesson will run smoothly.
3. Review your plans with a colleague.
4. Obtain/Create materials needed for the lesson.
5. Conduct the lesson.
6. Adjust formative and summative assessments and objectives as necessary based on observations and data collected while teaching.

When Designing your Actual Lessons....

1. **Brainstorm** multiple strategies
2. **Cluster** into introductory, advanced, and strategies that fit between these two
3. **Sequence** activities in plan book
4. **Correlate** Class Profile descriptors, expertise in students at this age, Differentiation Strategies, and Cognitive Science Principles to lessons – What do you need to change in order to maximize instruction for all students?

Moving Content into Long-term Memory

Students have to do both,

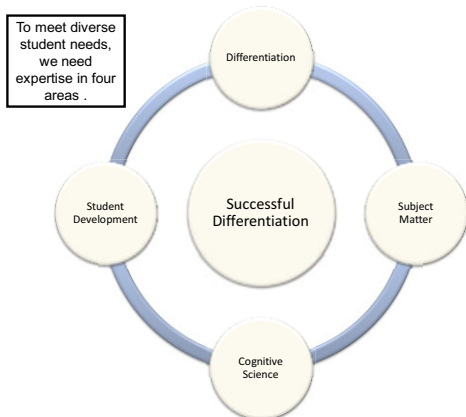
Access  Sense-Making

Process  Meaning-Making

Quick Reference: Differentiated Lesson Planning Sequence

C. Steps to take after providing the learning experiences:

1. Evaluate the lesson's success with students. What evidence do you have that the lesson was successful? What worked and what didn't, and why?
2. Record advice on lesson changes for yourself for when you do this lesson in future years.



What is Mastery?

“Tim was so learned, that he could name a horse in nine languages; so ignorant, that he bought a cow to ride on.”

Ben Franklin, 1750, *Poor Richard's Almanac*

Working Definition of Mastery
(Wormeli)

Students have mastered content when they demonstrate a thorough understanding as evidenced by doing something substantive with the content beyond merely echoing it. Anyone can repeat information; it's the masterful student who can break content into its component pieces, explain it and alternative perspectives regarding it cogently to others, and use it purposefully in new situations.

Consider Gradations of Understanding and Performance from
Introductory to Sophisticated

Introductory Level Understanding:

Student walks through the classroom door while wearing a heavy coat. Snow is piled on his shoulders, and he exclaims, "Brrrrr!" From depiction, we can infer that it is cold outside.

Sophisticated level of understanding:

Ask students to analyze more abstract inferences about government propaganda made by Remarque in his wonderful book, *All Quiet on the Western Front*.

- Determine the surface area of a cube.
- Determine the surface area of a rectangular prism (a rectangular box)
- Determine the amount of wrapping paper needed for another rectangular box, keeping in mind the need to have regular places of overlapping paper so you can tape down the corners neatly
- Determine the amount of paint needed to paint an entire Chicago skyscraper, if one can of paint covers 46 square feet, and without painting the windows, doorways, or external air vents.

There's a big difference: What are we really trying to assess?

- "Explain the second law of thermodynamics" vs. "Which of the following situations shows the second law of thermodynamics in action?"
- "What is the function of a kidney?" vs. "Suppose we gave a frog a diet that no impurities – fresh organic flies, no pesticides, nothing impure. Would the frog still need a kidney?"
- "Explain Keynes's economic theory" vs. "Explain today's downturn in the stock market in light of Keynes's economic theory."

From, *Teaching the Large College Class*, Frank Heppner, 2007, Wiley and Sons

Feedback vs Assessment

Feedback: Holding up a mirror to the student, showing him what they did and comparing it to the criteria for success, there's no evaluative component or judgement

Assessment: Gathering data so we can make a decision

Greatest Impact on Student Success:

Formative feedback

This quarter, you've taught:

- 4-quadrant graphing
- Slope and Y-intercept
- Multiplying binomials
- Ratios/Proportions
- 3-dimensional solids
- Area and Circumference of a circle.

The student's grade: B

What does this mark tell us about the student's proficiency with each of the topics you've taught?

Unidimensionality – A single score on a test represents a single dimension or trait that has been assessed

Student	Dimension A	Dimension B	Total Score
1	2	10	12
2	10	2	12
3	6	6	12

Problem: Most tests use a single score to assess multiple dimensions and traits. The resulting score is often invalid and useless. -- Marzano, CAGTW, page 13

Defining D.I. Concept-Attainment Style

- Some students [get] more work to do, and others less. For example, a teacher might assign two book reports to advanced readers and only one to struggling readers. Or a struggling math student might have to do only the computation problems while advanced math students do the word problems as well.” (Tomlinson, p. 7)
- Teachers have more control in the classroom.
- Teacher uses many different group structures over time.

A science and math teacher, Mr. Blackstone, teaches a large concept (Inertia) to the whole class. Based on “exit cards” in which students summarize what they learned after the whole class instruction, and observation of students over time, he assigns students to one of two labs: one more open-ended and one more structured. Those that demonstrate mastery of content in a post-lab assessment, move to an independent project (rocketry), while those that do not demonstrate mastery, move to an alternative rocketry project, guided by the teacher, that re-visits the important content. (Tomlinson, p. 24)

Teachers can differentiate:

Content

Process

Product

Affect

Learning Environment





According to:

Readiness

Interest

**Learning
Profile**

Flexible Grouping: Questions to Consider

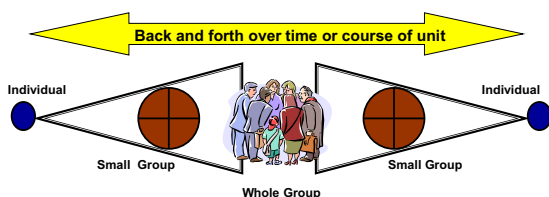
- Is this the only way to organize students for learning?
- Where in the lesson could I create opportunities for students to work in small groups?
- Would this part of the lesson be more effective as an independent activity?
- Why do I have the whole class involved in the same activity at this point in the lesson?
- Will I be able to meet the needs of all students with this grouping?
- I've been using a lot of *[insert type of grouping here – whole class, small group, or independent work]* lately. Which type of grouping should I add to the mix?

There's a range of flexible groupings:

- Whole class or half class
- Teams
- Small groups led by students
- Partners and triads
- Individual study
- One-on-one mentoring with an adult
- Temporary pull-out groups to teach specific mini-lessons
- Anchor activities to which students return after working in small groups
- Learning centers or learning stations through which students rotate in small groups or individually.

Ebb and Flow of Experiences

[Tomlinson]



Basic Principles:

- **Assessment informs instruction –**
Diagnosis and action taken as a result of diagnosis are paramount.
- **Assessment and instruction are inseparable.**
- **Change complexity, not difficulty. Change the quality/nature, not the quantity.**
Structured or open-ended?

Basic Principles:

(Continued)

- Use respectful tasks.
- Use tiered lessons
- Compact the curriculum.
- Scaffold instruction.
- Organization and planning enable flexibility.

Basic Principles:

(Continued)

- Teachers have more control in the classroom, not less.
- Frequently uses flexible grouping.
- Teachers and students collaborate to deliver instruction.



Models of Instruction That Work

Dimension of Learning:

[Robert Marzano]

- Positive Attitudes and Perceptions about Learning
- Acquiring and Integrating Knowledge
- Extending and Refining Knowledge
- Using Knowledge Meaningfully
- Productive Habits of Mind

1/3 Model:

[Canaday and Rettig]

- 1/3 Presentation of content
- 1/3 Application of knowledge and skills learned
- 1/3 Synthesis of the information

Concept Attainment Model:

[Summarized from Canaday and Rettig]

- Teacher presents examples, students work with them, noting attributes
- Teacher has students define the concept to be learned
- More examples are critiqued in light of newly discovered concept
- Students are given practice activities in which they apply their understanding of the lesson concept
- Students are evaluated through additional applications

Direct Instruction Model

[Summarized from Canaday and Rettig]

- Review previously learned material/homework
- State objectives for today
- Present material
- Provide guided practice with feedback
- Re-teach (as needed)
- Assign independent practice with feedback
- Review both during and at the end of the lesson
- Closure (Summarization)

Learning Profile Models:

**Myers - Briggs Personality Styles, Bernice
McCarthy's 4MAT System, Gregorc Scale
and Teaching Model, Bramson's Styles of
Thinking, Left Brain vs. Right Brain,
Multiple Intelligences**

**Additional Differentiated
Instruction Strategies**

- **Use Anticipation Guides**
- **Create personal agendas for some students**
- **Use centers/learning stations**
- **Adjust journal prompts and level of questioning to meet challenge levels**
- **Incorporate satellite studies ("Orbitals")**

Personal Agenda for Michael R., December 5th, 2008

Daily Tasks:

- ☐ Place last night's homework at the top right corner of desk.
- ☐ Record warm-up activity from chalkboard into learning log.
- ☐ Complete warm-up activity.
- ☐ Listen to teacher's explanation of the lesson's agenda.
- ☐ Record assignments from Homework Board into notebook.

Specific to Today's Lesson:

- ☐ Get graphic organizer from teacher and put name/date at top.
- ☐ Fill in examples in g.o. while teacher explains it to the class.
- ☐ Read both sides of the g.o. so you know what you are looking for.
- ☐ Watch the video and fill in the g.o. during the breaks.
- ☐ Complete closing activity for the video.
- ☐ Ask Ms. Green to sign your assignment notebook.
- ☐ Go to math class, but first pick up math book in locker.


- Readiness
- Interest
- Learning Profile

Tier in gradations

- Changing the level of complexity or required readiness of a task or unit of study in order to meet the developmental needs of the students involved (Similar to Tomlinson's "Ratcheting").

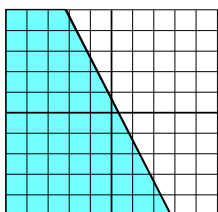
1. $y > 2$ 2. $6x + 3y \leq 2$ 3. $-y < 3x - 7$

$$\begin{aligned} 2. \quad & 6x + 3y \leq 2 \\ & 3y \leq -6x + 2 \\ & y \leq -2x + 2/3 \end{aligned}$$



x	y
0	$\frac{2}{3}$
3	$-5\frac{1}{3}$

Given these two ordered pairs, students would then graph the line and shade above or below it, as warranted.



For early readiness students:

- Limit the number of variables for which student must account to one in all problems. ($y > 2$)
- Limit the inequality symbols to, “greater than” or, “less than,” not, “greater then or equal to” or, “less than or equal to”
- Provide an already set-up 4-quadrant graph on which to graph the inequality
- Suggest some values for x such that when solving for y, its value is not a fraction.

For advanced readiness students:

- Require students to generate the 4-quadrant graph themselves
- Increase the parameters for graphing with equations such as: $-1 \leq y \leq 6$
- Ask students what happens on the graph when a variable is given in absolute value, such as: $|y| > 1$
- Ask students to graph two inequalities and shade or color only the solution set (where the shaded areas overlap)

Primary Reading Example

Track eye movement across the line – Lines presented with lots of space in between each one:

1. Follow pattern of rotating shapes:



2. Follow pattern of alternating letters and similar patterns:

A B A B A B A B A B A B A B A B A B

C F C C F F C C C F F F C C C C F F F F

3. Follow increasingly complex letter patterns:

- B B D J D B B D J D B B E E R X R E E R X R
- W N M P O U I P L K G P A B N P Q V T P

4. Repeat with lines closer to together and with smaller fonts, making sure students focus doesn't stray higher or lower than the line:

eeiiaabbxxrruuwwwxyyzziiittooppqqrssaagg
ffff rrrr ttss ppil uuoo aaoo eooo iloo oooo ffff rrrr
fop pof rip pir tap pat lot tol tab bat sir ris lip pil bor rob kep pek moo oom

5. Track along the line with simple words, adding simple punctuation:

Bob can bark. Bob can bark. Bob can bark.
Rob can purr. Rob can purr. Rob can purr.
Rat wears a hat. Rat wears a hat. Rat wears a hat.

Tiering Assignments and Assessments -- Advice

- **Begin by listing every skill or bit of information a student must use in order to meet the needs of the task successfully. Most of what we teach has subsets of skills and content that we can break down for students and explore at length.**

Tiering Assignments and Assessments -- Advice

- **Tier tasks by designing the full-proficiency version first, then design the more advanced level of proficiency, followed by the remedial or early-readiness level, as necessary.**

Tiering Assignments and Assessments -- Advice

- **Respond to the unique characteristics of the students in front of you. Don't always have high, medium, and low tiers.**

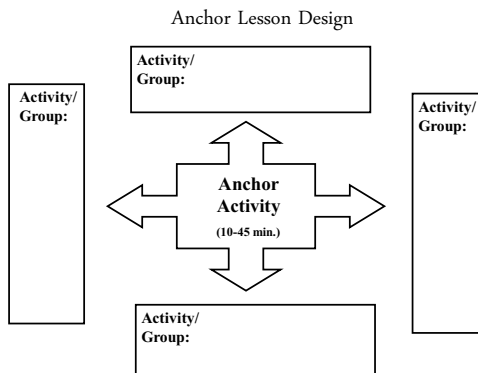
Tiering Assignments and Assessments -- Advice

- **Don't tier every aspect of every lesson. It's often okay for students to do what everyone else is doing.**

- When first learning to tier, stay focused on one concept or task.

Anchor activities refer to two types of learner management experiences:

- “Sponge” activities that soak up down time, such as when students finish early, the class is waiting for the next activity, or the class is cleaning up or distributing papers/supplies
- A main activity everyone is doing from which the teacher pulls students for mini-lessons



- Use activities with multiple steps to engage students
- Require a product – ‘increases urgency and accountability
- Train students what to do when the teacher is not available
- Start small: Half the class and half the class, work toward more groups, smaller in size
- Use a double t-chart to provide feedback
- Occasionally, videotape and provided feedback

Double-T Charts

[eye]	[ear]	[heart]
Char.'s of success we'd <u>see</u>	Char.'s of success we'd we'd <u>hear</u>	Char.'s of success we'd <u>feel</u>

What to Do

When the Teacher is Not Available

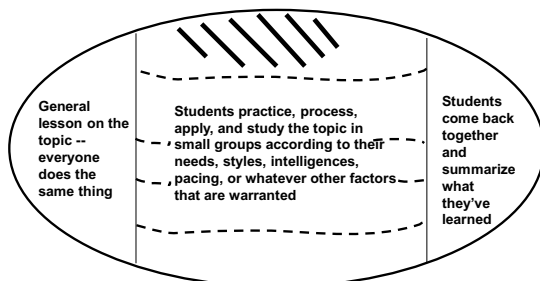
Suggestions include:

- Move on to the next portion; something may trigger an idea
- Draw a picture of what you think it says or asks
- Re-read the directions or previous sections
- Find a successful example and study how it was done
- Ask a classmate ("Ask Me," "Graduate Assistant," "Technoids")
- Define difficulty vocabulary
- Try to explain it to someone else

The Football Sequence

1. First teach a general lesson to the whole class for the first 10 to 15 minutes.
2. After the general lesson, divide the class into groups according to readiness, interest, or learning profile and allow them to process the learning at their own pace or in their own way. This lasts for 15 to 20 minutes. We circulate through the room, clarifying directions, providing feedback, assessing students, and answering questions. This section is very expandable to help meet the needs of students.
3. Bring the class back together as a whole group and process what they've learned. This can take the form of a summarization, a Question and Answer session, a quick assessment to see how students are doing, or some other specific task that gets students to debrief with each other about what they learned. This usually takes about 10 minutes.

The football metaphor comes from the way we think about the lesson's sequence: a narrow, whole class experience in the beginning, a wider expansion of the topic as multiple groups learn at the own pace or in their own ways, then narrowing it back as we re-gather to process what we've learned.



To Increase (or Decrease) a Task's Complexity,
Add (or Remove) these Attributes:

- Manipulate information, not just echo it
- Extend the concept to other areas
- Integrate more than one subject or skill
- Increase the number of variables that must be considered; incorporate more facets
- Demonstrate higher level thinking, i.e. Bloom's Taxonomy, William's Taxonomy
- Use or apply content/skills in situations not yet experienced
- Make choices among several substantive ones
- Work with advanced resources
- Add an unexpected element to the process or product
- Work independently
- Reframe a topic under a new theme
- Share the backstory to a concept – how it was developed
- Identify misconceptions within something

To Increase (or Decrease) a Task's Complexity,

Add (or Remove) these Attributes:

- Identify the bias or prejudice in something
- Negotiate the evaluative criteria
- Deal with ambiguity and multiple meanings or steps
- Use more authentic applications to the real world
- Analyze the action or object
- Argue against something taken for granted or commonly accepted
- Synthesize (bring together) two or more unrelated concepts or objects to create something new
- Critique something against a set of standards
- Work with the ethical side of the subject
- Work in with more abstract concepts and models
- Respond to more open-ended situations
- Increase their automaticity with the topic
- Identify big picture patterns or connections
- Defend their work

- **Manipulate information, not just echo it:**
 - "Once you've understood the motivations and viewpoints of the two historical figures, identify how each one would respond to the three ethical issues provided."
- **Extend the concept to other areas:**
 - "How does this idea apply to the expansion of the railroads in 1800's?" or, "How is this portrayed in the Kingdom Protista?"
- **Work with advanced resources:**
 - "Using the latest schematics of the Space Shuttle flight deck and real interviews with professionals at Jet Propulsion Laboratories in California, prepare a report that..."
- **Add an unexpected element to the process or product:**
 - "What could prevent meiosis from creating four haploid nuclei (gametes) from a single haploid cell?"

- **Reframe a topic under a new theme:**
 - "Re-write the scene from the point of view of the antagonist," "Re-envision the country's involvement in war in terms of insect behavior," or, "Re-tell Goldilocks and the Three Bears so that it becomes a cautionary tale about McCarthyism."
- **Synthesize (bring together) two or more unrelated concepts or objects to create something new:**
 - "How are grammar conventions like music?"
- **Work with the ethical side of the subject:**
 - "At what point is the Federal government justified in subordinating an individual's rights in the pursuit of safe-guarding its citizens?"

The Equalizer
(Carol Ann Tomlinson)

Foundational ----- Transformational
Concrete ----- Abstract
Simple ----- Complex
Single Facet/fact ----- Multi-Faceted/facts
Smaller Leap ----- Greater Leap
More Structured ----- More Open
Clearly Defined ----- Fuzzy Problems
Less Independence ----- Greater Independence
Slower ----- Quicker

R.A.F.T.S.

**R = Role, A = Audience, F = Form, T = Time or Topic, S = Strong
adverb or adjective**

Students take on a role, work for a specific audience, use a particular form
to express the content, and do it within a time reference, such as pre-
Civil War, 2025, or ancient Greece.

Sample assignment chosen by a student:

A candidate for the Green Party (role), trying to convince election board
members (audience) to let him be in a national debate with Democrats
and the Republicans. The student writes a speech (form) to give to the
Board during the Presidential election in 2004 (time). Within this
assignment, students use arguments and information from this past
election with third party concerns, as well as their knowledge of the
election and debate process. Another student could be given a RAFT
assignment in the same manner, but this time the student is a member
of the election board who has just listened to the first student's speech.

R.A.F.T.S.

Raise the complexity: Choose items for each
category that are farther away from a natural fit
for the topic. Example: When writing about Civil War
Reconstruction, choices include a rap artist, a
scientist from the future, and Captain Nemo.

Lower the complexity: Choose items for each
category that are closer to a natural fit for the
topic. Example: When writing about Civil War
Reconstruction, choices include a member of the
Freedmen's Bureau, a southern colonel returning
home to his burned plantation, and a northern
business owner

Learning Menus

Similar to learning contracts, students are given choices of tasks to complete in a unit or for an assessment. “Entrée” tasks are required, they can select two from the list of “side dish” tasks, and they can choose to do one of the “desert” tasks for enrichment.

(Tomlinson, *Fulfilling the Promise of the Differentiated Classroom*, 2003)

Tic-Tac-Toe Board

Geometry	Summarize (Describe)	Compare (Analogy)	Critique
A Theorem			
An math tool			
Future Developments			

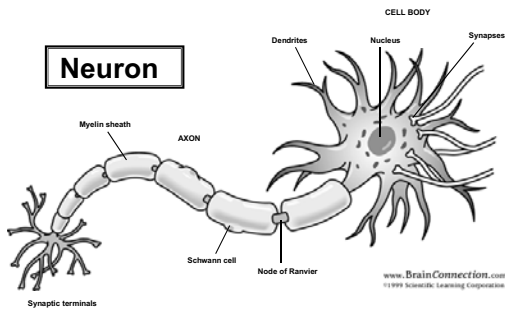
Change the Verb

Instead of asking students to describe how FDR handled the economy during the Depression, ask them to rank four given economic principles in order of importance as they imagine FDR would rank them, then ask them how President Hoover who preceded FDR would have ranked those same principles differently.

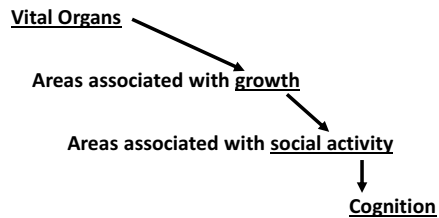
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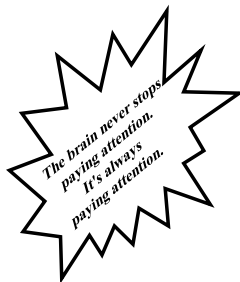
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Oxygen/Nutrient-Filled Bloodflow
When the Body is in Survival Mode

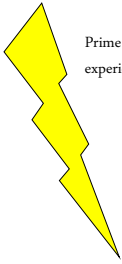


The Brain's Dilemma:
What Input to Keep, and What Input to Discard?



- Survival
- Familiarity/Context
- **Priming**
- Intensity
- Emotional Content
- Movement
- Novelty

— Summarized from Pat Wolfe's *Brain Matters*, 2001

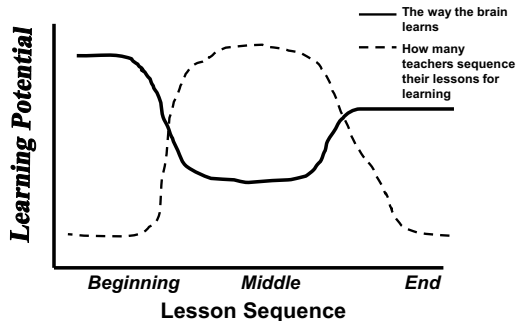


Prime the brain prior to asking students to do any learning experience.

Priming means we show students:

- 1) What they will get out of the experience (the objectives)
- 2) What they will encounter as they go through the experience (itinerary, structure)

Worthy they were,
Rafael, Leonardo, Michelangelo, and Donatello.
Theirs' a chromatic and plumed rebirth,
'A daring reflection upon man.
Beyond Hastings and a Wife's tale in Canterbury,
Galileo thrust at more than Windmills,
He, Copernicus Gravitates.
And for the spectre of debate,
religion blinked then jailed,
errant no more,
thereby errant forever.
Cousin to Pericles, Son of Alexander,
The cosmology of Adam fanned for all,
feudal plains trampled by trumpeters,
man and woman lay awake --
calves on wobbly legs,
staring at new freedom
and Gutenberg's promise.



The Primacy-Recency Effect

Avoid Confabulation

The brain seeks wholeness. It will fill in the holes in partial learning with made-up learning and experiences, and it will convince itself that this was the original learning all along. To prevent this:

Deal with Misconceptions!

Students should summarize material they already understand, not material they are coming to know.

Perception

B

- What do you see?
- What number do you see?
- What letter do you see?

Perception is when we bring meaning to the information we receive, and it depends on prior knowledge and what we expect to see. (Wolfe, 2001)

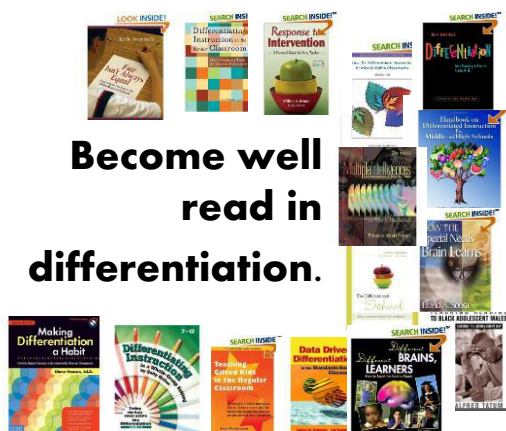
Are we teaching so that students perceive, or just to present curriculum and leave it up to the student to perceive it?

Recall Success
with Individual, Unrelated Items

Age of Student	# of Unconnected, Individual Items Successfully Recalled (plus or minus 2, Wolfe, 2001)
5	2
7	3
11	5
15+	7

- A. "Tell me about the students in this class."
- B. "What were you trying to accomplish with this lesson?"
- C. "May I see your class profile?" (also known as a, "learner profile")
- D. "How did you determine who was in which group today?"
- E. "Why are you teaching this topic this way to these specific students?"
- F. "How did you alter your instruction based on the unique needs of these students?"
- G. "What did you do with students prior to this lesson to prepare them for it?"

- H. "How will you have students respond to this information tomorrow or later in the week?"
- I. "How did(does) assessment inform your decisions?"
- J. "Is there anything you would change in this lesson the next time you teach it?"
- K. "How will (or did) you know you were successful in this lesson with every student?"
- L. "'Fair isn't always equal,' is a popular sentiment in differentiated classrooms. Please show how this is manifest in your classroom."

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Great Resources to Further
your Thinking and Repertoire

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- Heacox, Diane, Ed.D. *Making Differentiation a Habit*, Free Spirit Publishing, 2009
- Heacox, Diane, Ed.D. *Differentiated Instruction in the Regular Classroom, Grades 3 – 12*, Free Spirit Publishing, 2000
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- Jensen, Eric. *Different Brains, Different Learners* (The Brain Store, 800-325-4769, www.thebrainstore.com)
- Lavoie, Richard. *How Difficult Can This Be? The F.A.T. City Workshop*, WETA Video, P.O. box 2626, Washington, D.C., 20013-2631 (703) 998-3293. The video costs \$49.95. Also available at www.Ldonline.
- Levine, Mel. *All Kinds of Minds*
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- Rogers, Spence; Ludington, Jim; Graham, Shari. *Motivation & Learning: Practical Teaching Tips for Black Schedules, Brain-Based Learning, Multiple Intelligences, Improved Student Motivation, Increased Achievement*, Peak Learning Systems, Evergreen, CO. 1998, To order, call: 303-679-9780
- Rutherford, Paula. *Instruction for All Students*, Just ASK Publications, Inc (703) 535-5432, 1998
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- Sprenger, Marilee. *How to Teach So Students Remember*, ASCD, 2005
- Sternberg, Robert J.; Grigorenko, Elena L. *Teaching for Successful Intelligence: To Increase Student Learning and Achievement*, Skylight Training and Publishing, 2001
- Strong, Richard W.; Silver, Harvey F.; Perini, Matthew J.; Tuculescu, Gregory M. *Reading for Academic Success: Powerful Strategies for Struggling, Average, and Advanced Readers, Grades 7-12*, Corwin Press, 2002

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